USER NEEDS INTERVIEW

Introduction



The objective of this interview is to collect the views of road managers and operators on:

- intelligent systems currently used to operate their road network
- solutions needed for the future.

Identity



Name of interviewee	-
Name of organisation	***General Directorate of National Roads and Motorways (GDDKiA)***

Type of organisation *(tick as appropriate)*	**Public road authority**	Toll road operator (public / private / semi-public)	
	Police	Other (please state : _____)	
Geographical Responsibility *(tick as appropriate)*	**National**	Local	
	Regional	Other (please state : _____)	
Responsibility for *(tick all that apply)*	**Motorways (some of them)**	**Expressways**	**Major roads (national roads)**
	Secondary roads	Local roads and streets	Other (e.g. Tunnel, Bridge), please state: _____)

Position of interviewee *(job title)*	**Chiefs of Departments, Department 's workers**
Roles of interviewee	**Management, traffic planning, winter maintenance, road safety**
Responsible for *(number of persons approx.)*	**About 100**

Open Questions

1 What are the main problems you currently face in managing your network (traffic and infrastructure)?
Give proposals and classify them by priority. For each problem: What measures are you taking, have taken in the past, are planning to take in the future?

Priority	Problem description	Measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
1a	Winter maintenance	**GLAZED FROST WARNING SYSTEM** The main assignment of a Glazed Frost Warning System is present road weather information to the road services delivering and existing or possible glazed frost threats evaluation	X	X	X		The system is working all year long
1b	Pavement state monitoring	**AXIS PRESSURE AND VEHICLE MASSE MEASURING SYSTEM**	X	X	X		The measures are made by the WIM system and also portable weighings by Road Transport Inspectorate
		PAVEMENT STATE MARKING SYSTEM Introduced for marking the technical state of the Polish national roads pavement for monitoring the surface state and planning the eventual repairs on the chosen road parts.	X	X	X		

* Be as precise as possible, e.g.: *"Measure started in 2002 and ongoing", "Measure definitely planed to start in 2006", "Aim to implement around 2008 but not definite"*, etc

Open Questions (continued)

1

Priority	Problem description	Measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
	Traffic density on the national roads	Traffic Management and Monitoring System Traffic Management and Monitoring System supervised by the Department of Studies of Polish Roads and Highways General Direction include 74 traffic measuring stations. Each of those stations includes traffic counters and vehicle classification system which distinguish 8 classes.	X	X	X		The system works all the time
1c		GENERAL TRAFFIC MEASURE The measure of the traffic density made every 5 years on the whole national roads network to get the basic information for the traffic management and roads planning		X			
1d							

* Be as precise as possible, e.g.: *"Measure started in 2002 and ongoing", "Measure definitely planed to start in 2006", "Aim to implement around 2008 but not definite"*, etc

Open Questions (continued)

2 How will planned measures be financed? (Direct financing from own funds / BOT (Build Operate and Transfer / PPP (Public Private Partnership), etc.

Direct financing from own funds

3 What is the approximate split of spending between road building, road maintenance and installation of new equipment on existing roads? / How has this split evolved?

Most of spending is given for the road building (budget and EC funds given for the infrastructure development) and existing road maintenance (especially during the winter period).

Installation of the new equipment is basically connected with two categories:

1. Installations on the new built roads (motorways – traffic/weather systems),
2. Installations in the most danger points (black spots) increasing the road safety (traffic lights, barriers, footbridges, etc.)

4 If you could choose one ITS or traffic management solution to improve safety, what would it be?

Traffic Management Systems with full driver information

5 If you could choose one thing to improve predictability of journeys (reliability of journey time information), what would it be?

Floating cars with GPS. But that system is very hard to introduce on the rural roads,

Open Questions (continued)

6 What degree of traffic control could you accept? (concerning speed enforcement, use of electronic toll tags to gather data, etc)

Speeding is a very big problem in Poland, so we rather chose speed enforcement

7 What causes the most damage to the your road network today?

Heavy trucks travelling from the east to the west (Russia – EU) and from the south to the north (to the sea ports). Due to the small number of the motorways in our country the trucks have to go through the national roads or through the cities roads which are not prepared for such a big load.

8 What system(s) or process(es) do you currently use to reduce this damage?

Improve the main roads construction to increase the load capacity.

Control the trucks load (WIM, stationary weights) and give fines (Road Transport Inspectorate)

9 What do you understand by “Intelligent Roads”?

In the very few words - Intelligent roads are roads (with the surrounding equipment) which can adapt to the changes in the traffic, load and other things happening on them.

Adaptation is made by giving the information to the drivers (radio, signs, GSM, etc. and changing the management mechanisms of the road part (traffic, weather, etc.)

Targeted Questions

→ For each Item (which corresponds to a technical task in INTRO), please state what measures you are taking at the moment / have taken in the past / are planning to take in the future (tick appropriate box)

10 **Surface safety monitoring** *(INTRO WP2)*

Problem description	Your measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
A. Stopping distance and skid resistance	**Pavement State Marking System measures** for marking the technical state of the Polish national roads pavement for monitoring the surface state and planning the eventual repairs on the chosen road parts. **Technical state of pavement is describes by the following parameters:** • **State of cracks** – describes by the pavement cracks index based on the visual marking • **Longitudinal evenness** – based on the longitudinal profile measurements made by the designed specialized profile-meter • **Ruts** – described by specialized measurements of the rut depth in the parallel transverse profile. • **Surface state** – described by the surface state index based on the visual marking • **Skid resistance property** – described by specialized measurements of coefficient of friction	X	X	X		The measures are made on the whole network of the national roads each year

	2					
	3					

The INTRO project aims to develop models to link stopping distance to dynamic micro-slip data and to static skid-resistance measurements. This is to better understand these relationships for two pilot phases (information to drivers and to road authorities). This information could for example be used in winter to recommend variable speeds according to the measured conditions.	**Comments (if any): Very good idea especially for the winter maintenance in the regions with changeable surface characteristic.**

Targeted Questions (continued)

10 **Surface safety monitoring** *(INTRO WP2)*

Problem description	Your measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
B. Real time information for maintenance data	**Glazed frost warning system** The stations in the system are measuring the road pavement conditions for the winter maintenance (surface state, surface temperature, etc.) – straight reaction procedures and forecasting		X	X		The system works on real time during the whole year
	2					
	3					

The INTRO project aims to conduct a pilot demonstration of information on slippery roads to road maintenance authorities. This is to enable them to differentiate between ice/snow that needs clearing and bad surface conditions that need repaving. Data will be processed and displayed using a GIS (Geographical Information System) interface. The test will take place using probe cars near Vienna, Austria.	**Comments (if any):**

Targeted Questions (continued)

10 **Surface safety monitoring** *(INTRO WP2)*

Problem description	**Your measures**	**Finished**	**Ongoing**	**Planned** *(definite)*	**Planned** *(not yet definite)*	**Time scale***
C. Real time information to drivers regarding road surfaces	**1**					
	2					
	3					

The INTRO project aims to provide road surface-related information (mainly stopping distance) to drivers via an appropriate in-vehicle HMI (Human-Machine Interface). This will be based on data from floating cars with an on-board micro-slip measurement system (which provide this data to a central server), and also from static road surface data (for floating cars without micro-slip data).	**Comments (if any):**

Targeted Questions (continued)

11 **Pavement conditions and infrastructure production** *(INTRO WP3)*

Problem description	**Your measures**	**Finished**	**Ongoing**	**Planned** *(definite)*	**Planned** *(not yet definite)*	**Time scale***
A. Intelligent pavements (pavement management, lifecycle and deterioration sensors)	**Axis pressure and vehicle masse measuring system** – the measures from the system are used to mark the pavement degradation.		X			System works now
	2					
	3					

The INTRO project aims to improve the management of the maintenance of the network (pavements and bridges) through smart methods of predicting the deterioration process and actual condition. The aim is to measure pavements in unobtrusive ways and make the information accessible at low cost. This includes a demonstration of sensor methods including in-situ sensors (such as loops, cameras and weigh-in-motion).	**Comments (if any):**

Targeted Questions (continued)

11 **Pavement conditions and infrastructure production** *(INTRO WP3)*

Problem description	Your measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
B. Remote pavement sensing from vehicles	**1**					
	2					
	3					

The INTRO project aims to demonstrate the use of data provided by sensors fitted to standard vehicles ("probe vehicles") for improving the monitoring of pavement condition, and hence maintenance. This will concentrate on monitoring comfort and safety of the ride, as well as road defects such as rutting.	**Comments (if any):**

Targeted Questions (continued)

12 **Traffic and safety monitoring** *(INTRO WP4)*

Problem description	Your measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
A. Data sensing for road, weather and traffic including Probe Vehicle / FCD (Floating Car Data) Technology	**GLAZED FROST WARNING SYSTEM** The system was founded on 1994, at present in the systems works about 200 road weather stations - (50 in the big cities like Warsaw, Lodz, Cracow, Wroclaw etc. and 150 on the national roads,). Monitoring stations, places on the main roads of the whole country are multi channel, microprocessor measurement devices working with different types of sensor That sensors measure a following parameters: • temperature on height 2m • temperature on height 20 cm • temperature on height 5 cm • type of an atmospheric fall (dew, rain, snow) • temporary value of an atmospheric fall (small, medium, hard) • temperature of a road surface • state of road surface (dry, wet, icy, salted) • road traffic (in chosen places) • video monitoring (in chosen places)		X			The system works all year long
	2					

	3					

The INTRO project aims to establish key traffic indicators, and to develop methods to calculate or estimate them using existing data sources for sensor-based measurement of traffic parameters. This includes analysis of data quality from using conventional single data sources and how this influences derived data (traffic flow, density, speeds, travel time, etc)	**Comments (if any):**

Targeted Questions (continued)

12 **Traffic and safety monitoring** *(INTRO WP4)*

Problem description	**Your measures**	**Finished**	**Ongoing**	**Planned** *(definite)*	**Planned** *(not yet definite)*	**Time scale***
B. Data fusion of data from different sources for providing a comprehensive picture of network conditions	**1**					
	2					

	3					

The INTRO project aims to design and develop a data fusion module accepting and combining information and data from traffic detectors and other sources, for assessing the traffic conditions on the road network and detecting critical traffic situations. This task involves fusion of travel time data and traffic data, link travel time correction, etc.	**Comments (if any):**

Targeted Questions (continued)

12 **Traffic and safety monitoring** *(INTRO WP4)*

Problem description	**Your measures**	**Finished**	**Ongoing**	**Planned** *(definite)*	**Planned** *(not yet definite)*	**Time scale***
C. Safety indicators for monitoring traffic condition ***(inter-vehicle distance, speed variance, etc)***	**1**					
	2					

	3					

The INTRO project aims to develop methods allowing relevant safety indicators to be estimated using traffic parameters. This will help traffic managers and drivers have a real-time overview of the safety level on different parts of the road network. This will be done by analysing accidents (only accidents linked to traffic conditions or road surface) on 6 sections of road network across Europe and using this data to build and validate models of safety indicators.	**Comments (if any):**

Targeted Questions (continued)

13 **General**

A. Which out of the above are in your opinion the most important/most useful approaches?

From our point of view the most important are real time information for maintenance and data sensing for road, weather and traffic. This topic is strictly connected with the winter maintenance and a good results of the INTRO research on that fields would be very useful for improving the procedures and data using.

Due to the road safety we are also interested in the stopping distance and skid resistance. The research on that field may introduce the good mechanism of warning the drivers and road maintenance.

B. What risks do you see?

Research on the skid resistance and stopping distance should be made on as wide area as it's possible. The climate differences between the INTRO countries are very big and the algorithms elaborated during the work should be checked in different areas (especially during the winter).

Also the data sources for the road sensing may be a problem. To get the data covering as much climate differences as it's possible may be hard.

14 **This is the end of the interview. Do you have any other comments?**

No.